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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/559,840
Filing Date: December 08, 2005
Appellant(s): DEL PRADO PAVON ET AL.

Brian S. Myers
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed July 7th, 2009 appealing from the Office action mailed February 18th, 2009.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

No amendment after final has been filed.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

20030210673	Nishimura	11-2003
20030169769	Ho et al.	09-2003

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 103

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 2, 4-12, and 14-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishimura (U.S. Patent Application Publication 2003/0210673) in view of Ho et al. (U.S. Patent Application Publication 2003/0169769).

For claim 1, Nishimura discloses a method of transmitting data frames over a data network, comprising transmitting a plural number of MAC (Media Access Control) data frames *(see paragraph 69, which recite an extended MAC frame containing multiple MAC frames that are combined)*, each MAC data frame including a header, a data field, and a frame check sequence (FCS) *(see figure 6, which recite multiple MAC frames each with a MAC header, data field, and FCS field)*, with only a single PLCP (Physical Layer Control Procedure) overhead *(see*

figure 6, which recite a single PLCP preamble and header for the combined plurality of MAC frames).

Nishimura discloses all the subject matter of the claimed invention with the exception wherein the method of transmitting data frames over a data network includes transmitting a concatenated MAC header indicating said plural number. Ho et al. from the same or similar fields of endeavor teach a method and apparatus for frame aggregation of MAC data *(see paragraph 15)* wherein the aggregated frame includes a frame sub-body count field 126 that indicates the number of frames that are aggregated *(see paragraph 41 and figure 6).* Thus, it would have been obvious to the person of ordinary skill in the art at the time of the invention to use the frame sub-body count field as taught by Ho et al. with the method of transmitting combined data frames over a data network as taught by Nishimura. The frame sub-body count field as taught by Ho et al. can be implemented by configuring the apparatus of transmitting combined data frames over a data network as taught by Nishimura to include the count field. The motivation for using frame sub-body count field with the apparatus of transmitting combined data frames over a data network is to improve the robustness of the transmission by providing information regarding the transmitted data.

For claim 2, Nishimura discloses a method of transmitting data frames over a data network wherein said PLCP overhead comprises a PLCP preamble and a PLCP header *(see figure 6, which recite a single PLCP preamble and header preceding the combined plurality of MAC frames).*

For claim 4, Nishimura discloses all the subject matter of the claimed invention with the exception wherein the concatenated MAC header further indicates a length of said plurality of

MAC data frames. Ho et al. from the same or similar fields of endeavor teach a method and apparatus for frame aggregation of MAC data *(see paragraph 15)* wherein the aggregated frame includes one or more sub-body length fields 130 that indicate the length of the plurality of MAC data frames *(see paragraph 41 and figure 6)*. A single length field or the sum of all the length fields could indicate the length of the plurality of data fames. Thus, it would have been obvious to the person of ordinary skill in the art at the time of the invention to use the frame length field as taught by Ho et al. with the method of transmitting combined data frames over a data network as taught by Nishimura. The frame length field as taught by Ho et al. can be implemented by configuring the apparatus of transmitting combined data frames over a data network as taught by Nishimura to include the frame length field. The motivation for using frame length field with the apparatus of transmitting combined data frames over a data network is to improve the robustness of the transmission by providing information regarding the transmitted data.

For claim 5, Nishimura discloses a frame structure of packet data for transmission over a data network including inserting said PLCP preamble after transmission of some of said plurality of MAC data frames *(see figure 6, which recite inserting a PLCP preamble after transmitting a plurality of MAC data frames from a previous combined frame)*.

For claim 6, Nishimura discloses a frame structure of packet data for transmission over a data network wherein said single PLCP overhead is provided in front of a first one of said plurality of MAC data frames *(see figure 6, which recite a single PLCP preamble and header preceding the combined plurality of MAC frames)*.

For claim 7, Nishimura discloses a method of transmitting data frames over a data network wherein the header, data field, and frame check sequence correspond to a MAC header

portion, a MAC frame body portion and a CRC (Cyclic Redundancy Check) portion, respectively *(see paragraph 69, which recite a MAC frame includes a MAC header, a MAC frame body containing an encapsulated IP packet, and a FCS cyclic redundancy check)*.

For claim 8, Nishimura discloses all the subject matter of the claimed invention with the exception wherein said plurality of MAC data frames are addressed to a common destination, said concatenated MAC header further indicates said destination, and said MAC header portion in each data frame is a compressed MAC header that does not include a portion indicating said destination. Ho et al. from the same or similar fields of endeavor teach a method and apparatus for frame aggregation of MAC data *(see paragraph 15)*. The resulting aggregated frame includes a single, concatenated MAC header containing a DTAID field associated with a common destination address for all the MAC sub-bodies of the aggregated frame *(see paragraph 59)*. It is noted that while the destination address is consolidated, the individual sub-body headers are preserved to include the sub-body length field *(see figure 6)*. Thus, it would have been obvious to the person of ordinary skill in the art at the time of the invention to use the DTAID field as taught by Ho et al. with the method of transmitting combined data frames over a data network as taught by Nishimura. The DTAID field as taught by Ho et al. can be implemented by configuring the apparatus of transmitting combined data frames as taught by Nishimura to insert the DTAID field between the PLCP overhead and the plurality of MAC data frames. The motivation for using a single DTAID field with the apparatus of transmitting combined data frames over a data network is to improve the efficiency of the transmission by eliminating redundant address fields of a common destination.

For claim 9, Nishimura discloses a method of transmitting data frames over a data network wherein said data network is a wireless data network *(see paragraph 19, which recite an extended MPDU containing multiple MAC frames used in wireless radio transmission)*.

For claim 10, Nishimura discloses a method of transmitting data frames over a data network wherein said wireless data network uses IEEE 802.11 protocol *(see paragraph 7)*.

For claim 11, Nishimura discloses a frame structure of packet data for transmission over a data network, comprising: a plural number of MAC (Media Access Control) data frames *(see paragraph 69, which recite an extended MAC frame containing multiple MAC frames that are combined)*; and a PLCP (Physical Layer Control Procedure) overhead including a PLCP preamble and a PLCP header *(see figure 6, which recite a single PLCP preamble and header preceding the combined plurality of MAC frames)*, wherein each MAC data frame including a header, a data field, and a frame check sequence (FCS) *(see figure 6, which recite multiple MAC frames each with a MAC header, data field, and FCS field)*, and only a single one of said PLCP overhead is provided to all said plurality of MAC data frames *(see figure 6, which recite a single PLCP preamble and header for the combined plurality of MAC frames)*.

Nishimura discloses all the subject matter of the claimed invention with the exception wherein the method of transmitting data frames over a data network includes transmitting a concatenated MAC header indicating said plural number. Ho et al. from the same or similar fields of endeavor teach a method and apparatus for frame aggregation of MAC data *(see paragraph 15)* wherein the aggregated frame includes a frame sub-body count field 126 that indicates the number of frames that are aggregated *(see paragraph 41 and figure 6)*. Thus, it would have been obvious to the person of ordinary skill in the art at the time of the invention to

use the frame sub-body count field as taught by Ho et al. with the method of transmitting combined data frames over a data network as taught by Nishimura. The frame sub-body count field as taught by Ho et al. can be implemented by configuring the apparatus of transmitting combined data frames over a data network as taught by Nishimura to include the count field. The motivation for using frame sub-body count field with the apparatus of transmitting combined data frames over a data network is to improve the robustness of the transmission by providing information regarding the transmitted data.

For claim 12, Nishimura discloses a frame structure of packet data for transmission over a data network wherein said single PLCP overhead is provided in front of a first one of said plurality of MAC data frames *(see figure 6, which recite a single PLCP preamble and header preceding the combined plurality of MAC frames)*.

For claim 14, Nishimura discloses all the subject matter of the claimed invention with the exception wherein the concatenated MAC header further indicates a length of said plurality of MAC data frames. Ho et al. from the same or similar fields of endeavor teach a method and apparatus for frame aggregation of MAC data *(see paragraph 15)* wherein the aggregated frame includes one or more sub-body length fields 130 that indicate the length of the plurality of MAC data frames *(see paragraph 41 and figure 6)*. A single length field or the sum of all the length fields could indicate the length of the plurality of data fames. Thus, it would have been obvious to the person of ordinary skill in the art at the time of the invention to use the frame length field as taught by Ho et al. with the method of transmitting combined data frames over a data network as taught by Nishimura. The frame length field as taught by Ho et al. can be implemented by configuring the apparatus of transmitting combined data frames over a data network as taught by

Nishimura to include the frame length field. The motivation for using frame length field with the apparatus of transmitting combined data frames over a data network is to improve the robustness of the transmission by providing information regarding the transmitted data.

For claim 15, Nishimura discloses all the subject matter of the claimed invention with the exception wherein said concatenated MAC header is located between said PLCP overhead and said first one of said plurality of MAC data frames. Ho et al. from the same or similar fields of endeavor teach a method and apparatus for frame aggregation of MAC data *(see paragraph 15)*. The resulting aggregated frame includes a concatenated MAC header that contains a frame sub-body count field and length field *(see paragraph 41 and figure 6)*. Thus, it would have been obvious to the person of ordinary skill in the art at the time of the invention to use the frame count and length field as taught by Ho et al. with the method of transmitting combined data frames over a data network as taught by Nishimura. The frame length field as taught by Ho et al. can be implemented by configuring the apparatus of transmitting combined data frames as taught by Nishimura to insert the frame count and length field between the PLCP overhead and the plurality of MAC data frames. The motivation for using frame count and length fields with the apparatus of transmitting combined data frames over a data network is to improve the robustness of the transmission by providing additional information regarding the transmitted data.

For claim 16, Nishimura discloses a frame structure of packet data for transmission over a data network wherein the header, a data field, and a frame check sequence (FCS) a MAC header portion, a MAC frame body portion and a CRC (Cyclic Redundancy Check) portion, respectively *(see paragraph 69, which recite a MAC frame includes a MAC header, a MAC frame body containing an encapsulated IP packet, and a FCS cyclic redundancy check)*.

For claim 17, Nishimura discloses all the subject matter of the claimed invention with the exception wherein said plurality of MAC data frames are addressed to a common destination, said concatenated MAC header further indicates said destination, and said MAC header portion in each data frame is a compressed MAC header that does not include a portion indicating said destination. Ho et al. from the same or similar fields of endeavor teach a method and apparatus for frame aggregation of MAC data *(see paragraph 15)*. The resulting aggregated frame includes a single, concatenated MAC header containing a DTAID field associated with a common destination address for all the MAC sub-bodies of the aggregated frame *(see paragraph 59)*. It is noted that while the destination address is consolidated, the individual sub-body headers are preserved to include the sub-body length field *(see figure 6)*. Thus, it would have been obvious to the person of ordinary skill in the art at the time of the invention to use the DTAID field as taught by Ho et al. with the method of transmitting combined data frames over a data network as taught by Nishimura. The DTAID field as taught by Ho et al. can be implemented by configuring the apparatus of transmitting combined data frames as taught by Nishimura to insert the DTAID field between the PLCP overhead and the plurality of MAC data frames. The motivation for using a single DTAID field with the apparatus of transmitting combined data frames over a data network is to improve the efficiency of the transmission by eliminating redundant address fields of a common destination.

For claim 18, Nishimura discloses a frame structure of packet data for transmission over a data network wherein said data network is a wireless data network *(see paragraph 19, which recite an extended MPDU containing multiple MAC frames used in wireless radio transmission)*.

For claim 19, Nishimura discloses a frame structure of packet data for transmission over a data network wherein said wireless data network uses IEEE 802.11 protocol *(see paragraph 7)*.

For claim 20, Nishimura discloses a frame structure of packet data for transmission over a data network wherein the PLCP overhead includes a PLCP preamble *(see figure 6, which recite a single PLCP preamble and header preceding the combined plurality of MAC frames)*.

(10) Response to Argument

I. REJECTION OF CLAIMS 1-20 UNDER 35 U.S.C. 103(a)

A. Claims 1-20

Regarding independent claim 1, the Appellants argues that "in contrast to Appellants' claimed invention as recited in claim 1, the frame subbody 132 as disclosed by Ho is not the same or equivalent to a MAC data frame as in Appellants' claim 1" *(see page 7 of the Applicant's Appeal Brief)*. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.,* 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Specifically, it is first noted that claim 1-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishimura in view of Ho et al. Nishimura discloses a method of transmitting a plural number of MAC data frames contained in a single extended data packet *(see paragraphs 12, 69, and figure 6)*. Each of the plural number of MAC data frames includes a MAC header, IP packet, and FCS *(see paragraph 69 and figure 6)*. The extended data packet that contains the

plurality of MAC data frames further contains a single PCLP header *(see paragraph 69 and figure 6)*. Thus, Nishimura discloses transmitting a plural number of MAC (Media Access Control) data frames, each MAC data frame including a header, a data field, and a frame check sequence (FCS), with only a single PLCP (Physical Layer Control Procedure) overhead as recited by claim 1. Since Nishimura already discloses MAC data frames that each containing header, a data field, and a frame check sequence (FCS) as recited in claim 1, the 35 U.S.C. 103(a) prior art rejection does not rely on Ho et al. to disclose a MAC data frame.

As noted by the Appellant, "the final Office action at page 3 admits that Nishimura does not disclose the method of transmitting a concatenated MAC header indicating said plural number of MAC data frames, and relies on Ho as disclosing this feature" *(see page 7 of the Applicant's Appeal Brief)*. Upon examination of the Appellant's application, it is noted that the concatenated MAC header portion as recited in claim 1 provides information regarding the number of frames following the PLCP header 12 *(see specification of the instant application, page 5 lines 1-6)*. Ho et al. discloses a method and apparatus for frame aggregation of MAC data *(see paragraph 15)* wherein the aggregated frame includes a frame sub-body count field 126 that indicates the number of frames that are aggregated *(see paragraph 41 and figure 6)*. Since Nishimura already discloses transmitting a plurality of MAC data frames as recited by claim 1, the 35 U.S.C. 103(a) prior art rejection relies on the count value as taught by Ho et al. to indicate the number of MAC data frames that are combined with a single PLCP header as taught by Nishimura.

Therefore, the 35 U.S.C. 103(a) prior art rejection relies on Nishimura as the primary reference that discloses all the subject of the claimed invention with the exception of a MAC

header that indicates a plural number of data frames. As explained above, Nishimura teaches the MAC data frame including a header, a data field, and a frame check sequence (FCS). The frame sub-body count field 126 as taught by Ho et al. is combined with the plurality of MAC data frames as taught by Nishimura to indicate the number of MAC data frames in the extended data packet. While the Appellant argues that the frame subbody 132 as disclosed by Ho is not the same or equivalent to a MAC data frame as in Appellants' claim 1, the prior art rejection does not require Ho et al. to disclose MAC data frame because the primary reference already discloses the limitation.

With respect to the combination of Nishimura and Ho et al. in the 35 U.S.C. 103(a) prior art rejection, it is noted that Nishimura and Ho et al. both disclose a system and method for combining and transmitting a plurality of data units into an extended frame or packet. Nishimura further discloses detecting the size of the received packet to determine whether the received packet is a conventional packet with a single data unit or a more efficient packet that contains a plurality of data units *(see paragraphs 80-83)*. By using the frame sub-body count field 126 as disclosed by Ho et al., Nishimura will be able to determine whether the received packet contains a plurality of data units for processing without the step of detecting the size of the received packet. Therefore, the motivation for using the frame sub-body count field with the apparatus of transmitting combined data frames over a data network is to provide information regarding the transmitted data in order to allow the receiver to determine whether a received packet contains multiple data units without having to detect the size of the received packet.

Regarding independent claim 11, the Appellant "essentially repeat the above arguments for claim 1 and apply them to claim 11" *(see page 9 of the Applicant's Appeal Brief)*.

Accordingly, the Examiner's response to the Appellant's arguments regarding claim 1 are repeated for claim 11.

Regarding dependent claims 2, 4-10, 12, and 14-20, the Appellant "essentially repeat the above arguments from claim 1 and applies them to each dependant claim" *(see page 9 of the Applicant's Appeal Brief)*. Accordingly, the Examiner's response to the Appellant's arguments regarding claim 1 are repeated for the dependant claims.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

Conclusion

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Ben H. Liu/

Examiner, Art Unit 2464

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/Ricky Q. Ngo/

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